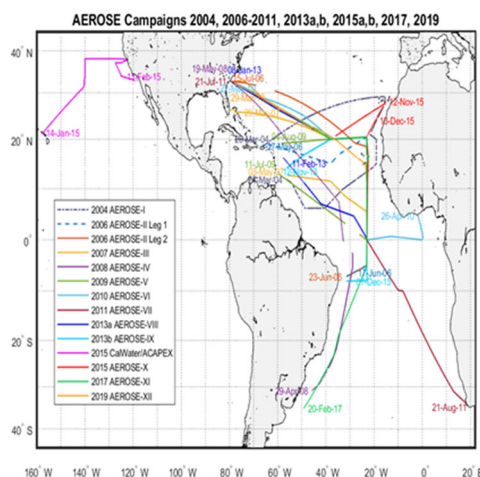
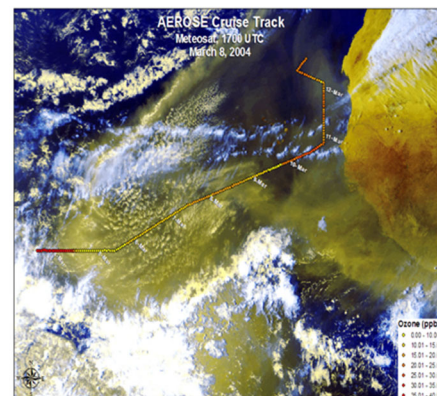


## SMS Spring 2022 Seminar Series

Friday April 29 | 2:30pm | Biodesign Auditorium

### Microphysical and Chemical Processes on Saharan Dust Aerosols During Their Atmospheric Life Cycle

The Saharan Desert is one of the largest sources of natural atmospheric aerosols worldwide and this has numerous implications on climate, health, and regional weather systems. For well over a decade, the Saharan Dust Aerosols and Ocean Science Expedition (AEROSE) cruises have collected in-situ and remotely sensed observations of Saharan dust plumes as they enter the marine boundary layer above the tropical Atlantic Ocean and as they propagate towards the Caribbean. The AEROSE cruises seek to address three central scientific questions: (1) What is the nature of the chemical, physical, and microbial changes on the mineral dust and smoke aerosol distributions as they evolve during trans-Atlantic transport? (2) How do Saharan and sub-Saharan outflows affect the regional atmosphere and ocean during trans-Atlantic transport? and (3) What is the capability of satellite remote sensing and numerical models for resolving and studying the above processes? Along the way, we have taken advantage of the unique setting to perform a variety of satellite calibration/validation experiments, model verification, and testing of prototype instrumentation.



My aim in this presentation is to share some of the general findings from the AEROSE cruises as well as some specific insights regarding microphysical evolution and ozone variability within Saharan dust plumes as a function of particle size and number density during transport across the Atlantic Ocean. This talk will focus on longitudinal analysis of cruise data between 2004 and 2019. At the end of the presentation, I will share a unique mentoring model that has been successful in broadening participation and inclusion in the geosciences and may be transferrable across the STEM fields.

## Vernon R. Morris, PhD

*Professor of Chemistry, Director of the School of Mathematical and Natural Sciences  
New College of Interdisciplinary Arts and Studies, Arizona State University*

In Dr. Morris joined Arizona State University as Professor of Chemistry and Environmental Sciences and Director of the School of Mathematical and Natural Sciences at the New College of Interdisciplinary Arts and Sciences in July 2020.

Previously, Dr. Morris was a Professor in the Department of Chemistry and Director of the Atmospheric Sciences Program at Howard University. He was the Principal Investigator and Founding Director of the NOAA Cooperative Science Center in Atmospheric Sciences and Meteorology (NCAS-M). This multidisciplinary research and education organization is a thirteen-member academic research consortium that NCAS-M partners with NOAA's National Weather Service (NWS), the National Satellite and Environmental Data Service (NESDIS), and Oceanic and Atmospheric Research (OAR) to advance scientific knowledge about the world's atmosphere and societal responses to weather, climate, and air quality phenomena.

Dr. Morris also founded the HU Graduate Program in Atmospheric Sciences (HUPAS). HUPAS is the first PhD-degree granting Atmospheric Sciences program at any minority-serving institution and is a national leader in the production of minority PhDs in its field. Under his guidance, over 50% of the African American and 30% of the Hispanic American PhDs in Atmospheric Sciences produced from 2006 to 2018 in the United States graduated from this program. 97% of the program's alumni are working in their respective fields across federal agencies, the private sector, and academia.



ZOOM option available: <https://asu.zoom.us/j/87081218152>